



# US1AF SERIES

## SURFACE MOUNT ULTRA FAST RECTIFIER

**VOLTAGE** 50-600 Volts **CURRENT** 1 Ampere

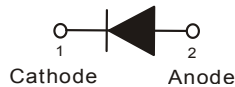
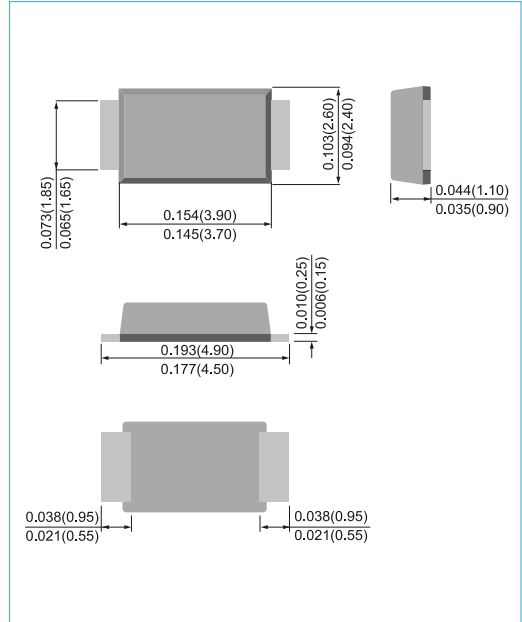
**SMAF** Unit : inch(mm)

### FEATURES

- For surface mounted applications
- Low profile package
- Built-in strain relief
- Easy pick and place
- Ultrafast recovery times for high efficiency
- Plastic package has Underwriters Laboratory Flammability Classification 94V-0
- Glass passivated junction
- Lead free in comply with EU RoHS 2002/95/EC directives.
- Green molding compound as per IEC61249 Std. . (Halogen Free)

### MECHANICAL DATA

- Case: SMAF molded plastic
- Terminals: Solder plated, solderable per MIL-STD-750, Method 2026
- Polarity : Color band denotes cathode end
- Approx. Weight: 0.0011 ounces, 0.0328 grams



### MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS (T<sub>A</sub>=25°C unless otherwise noted)

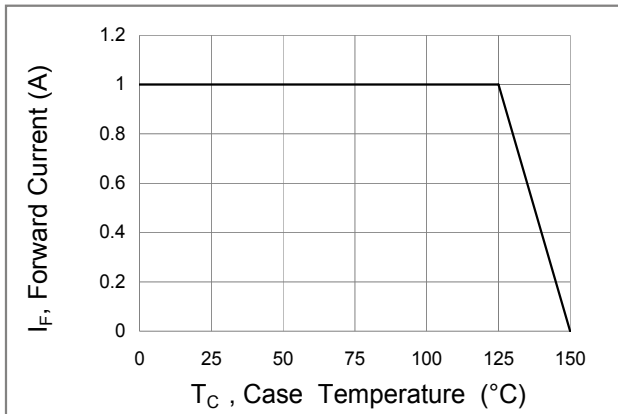
| PARAMETER   | SYMBOL                               | US1AF       | US1BF | US1DF | US1GF | US1JF | UNITS  |
|---|--------------------------------------|-------------|-------|-------|-------|-------|--------|
| Recurrent Peak Reverse Voltage  | V <sub>RRM</sub>                     | 50          | 100   | 200   | 400   | 600   | V      |
| RMS Voltage   | V <sub>RMS</sub>                     | 35          | 70    | 140   | 280   | 420   | V      |
| DC Blocking Voltage   | V <sub>R</sub>                       | 50          | 100   | 200   | 400   | 600   | V      |
| Average Forward Current   | I <sub>F(AV)</sub>                   | 1           |       |       |       |       | A      |
| Peak Forward Surge Current : 8.3ms single half sine-wave superimposed on rated load(JEDEC method) | I <sub>FSM</sub>                     | 30          |       |       |       |       | A      |
| Forward Voltage at 1.0A   | V <sub>F</sub>                       | 1.0         |       | 1.4   | 1.7   | V     |        |
| DC Reverse Current at Rated DC Blocking Voltage      T <sub>J</sub> =25°C                         | I <sub>R</sub>                       | 1.0         |       |       |       |       | μA     |
| Typical Junction capacitance      V <sub>R</sub> =4V,f=1MHz                                       | C <sub>J</sub>                       | 20          |       | 15    | 10    | pF    |        |
| Typical Thermal Resistance ,Junction to Lead (Note 1)<br>Junction to Ambient (Note 2)             | R <sub>θJL</sub><br>R <sub>θJA</sub> | 19<br>150   |       |       |       |       | °C / W |
| Reverse Recovery Time (I <sub>F</sub> =0.5A, I <sub>R</sub> =1.0A,I <sub>rr</sub> =0.25A)         | T <sub>rr</sub>                      | 50          |       |       | 100   | ns    |        |
| Operating Junction Temperature and Storage Temperature Range                                      | T <sub>J</sub> ,T <sub>STG</sub>     | -55 to +150 |       |       |       |       | °C     |

NOTES : 1. Mounted on an FR4 PCB, single-sided copper, with 48cm<sup>2</sup> copper pad area  
2. Mounted on an FR4 PCB, single-sided copper, mini pad.

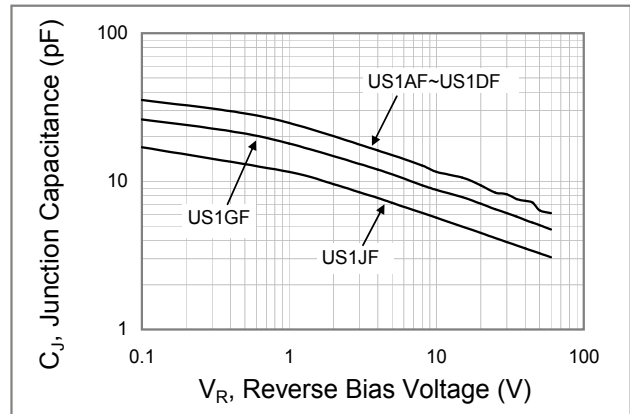


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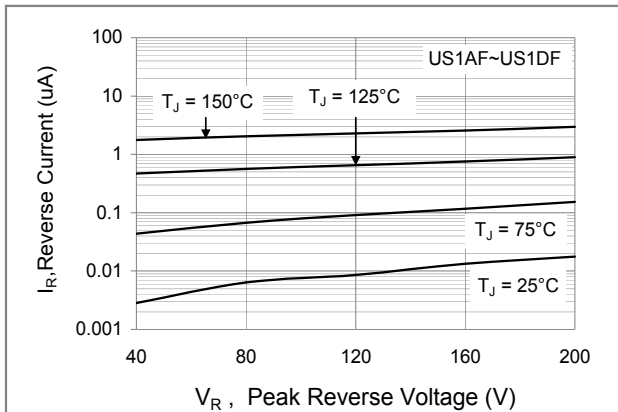
## RATING AND CHARACTERISTIC CURVES



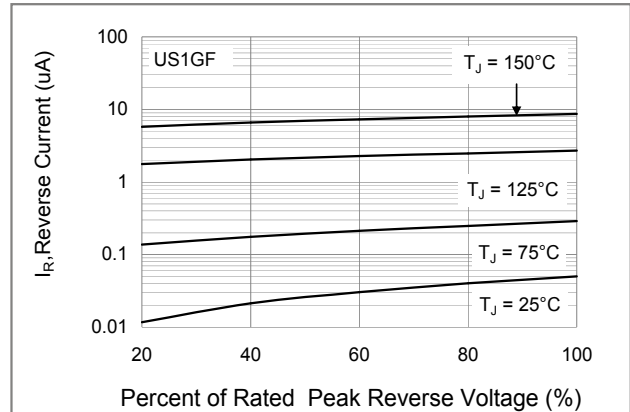
**Fig.1 Forward Current Derating Curve**



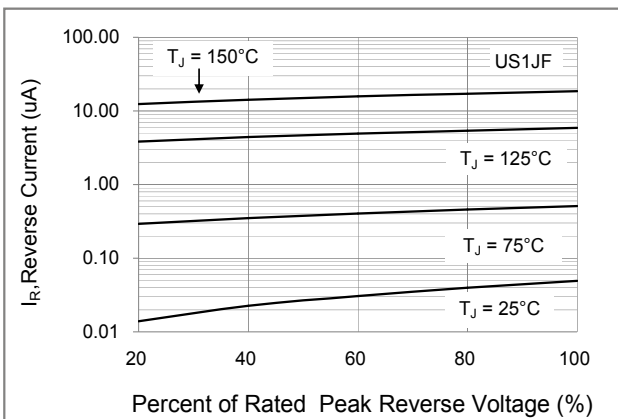
**Fig.2 Typical Junction Capacitance**



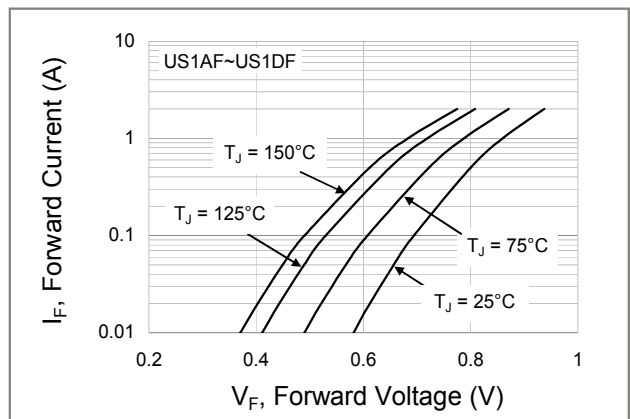
**Fig.3 Typical Reverse Characteristics**



**Fig.4 Typical Reverse Characteristics**



**Fig.5 Typical Reverse Characteristics**

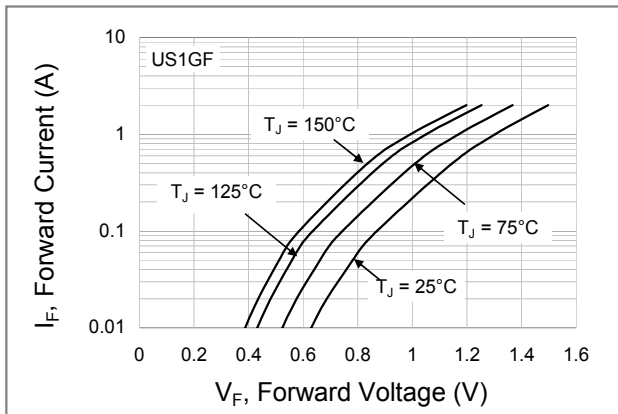


**Fig.6 Typical Forward Characteristics**

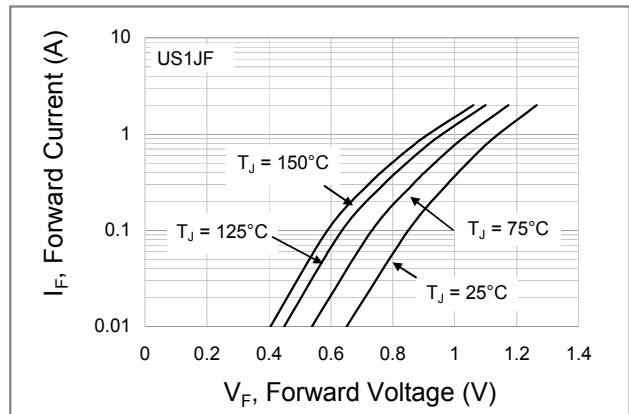


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## RATING AND CHARACTERISTIC CURVES



**Fig.7 Typical Forward Characteristics**

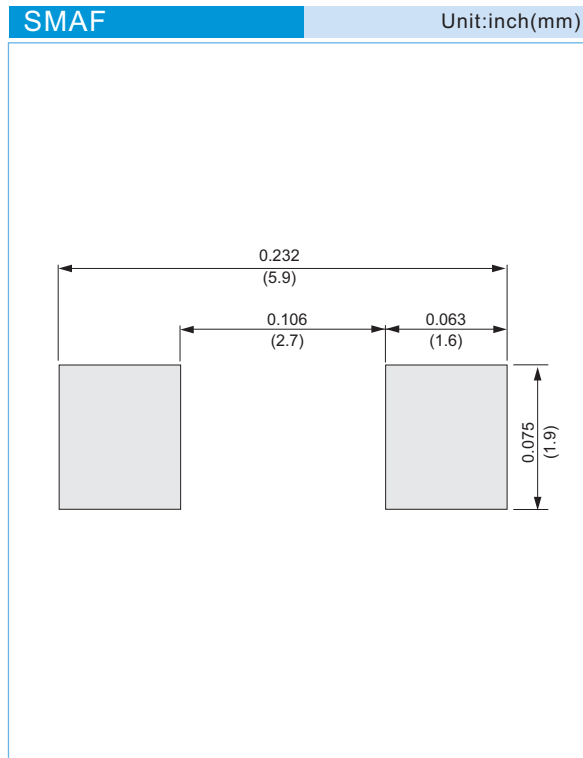


**Fig.8 Typical Forward Characteristics**



# US1AF SERIES

## MOUNTING PAD LAYOUT



## ORDER INFORMATION

- Packing information
  - T/R - 10K per 13" plastic Reel
  - T/R - 3K per 7" plastic Reel

## LEGAL STATEMENT

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For example :

**RB500V-40\_R2\_00001**



| Packing Code <b>XX</b> |                      |                   |                      | Version Code <b>XXXXX</b> |                      |                                       |
|------------------------|----------------------|-------------------|----------------------|---------------------------|----------------------|---------------------------------------|
| Packing type           | 1 <sup>st</sup> Code | Packing size code | 2 <sup>nd</sup> Code | HF or RoHS                | 1 <sup>st</sup> Code | 2 <sup>nd</sup> ~5 <sup>th</sup> Code |
| T/B                    | <b>A</b>             | N/A               | <b>0</b>             | <b>HF</b>                 | <b>0</b>             | serial number                         |
| T/R                    | <b>R</b>             | 7"                | <b>1</b>             | <b>RoHS</b>               | <b>1</b>             | serial number                         |
| B/P                    | <b>B</b>             | 13"               | <b>2</b>             |                           |                      |                                       |
| T/P                    | <b>T</b>             | 26mm              | <b>X</b>             |                           |                      |                                       |
| TRR                    | <b>S</b>             | 52mm              | <b>Y</b>             |                           |                      |                                       |
| TRL                    | <b>L</b>             | PBCU              | <b>U</b>             |                           |                      |                                       |
| FORMING                | <b>F</b>             | PBCD              | <b>D</b>             |                           |                      |                                       |

**Part No\_packing code\_Version**

US1AF\_R1\_00001

US1AF\_R2\_00001